

for existing

25 July 1969

Dr. John Nichols
Kansas City

Dear John:

The matter discussed in this letter will interest you if any of your researches are affected by Josiah Thompson's notion that CE399 might have struck JFK as a sub-velocity bullet, the result of a so-called "short charge", a defective cartridge that produces less than normal chamber pressure and fires bullets at much less than normal velocity. Based on the supposition that CE399 was a sub-velocity bullet, Thompson's account plausibly legitimizes CE399 as part of the shooting paraphernalia. His discussion is in Six Seconds, pp.166-168. Parts of it are hard to swallow, but Thompson's conclusions describe what appear to be the only circumstances under which CE399 might reasonably be regarded as playing a role in the assassination.

I have thought of something that I am fairly certain will invalidate the notion of a sub-velocity bullet being fired from any of the three cartridge cases that were found in the TSBD. I plan to run some tests which I am confident will prove not merely that Thompson's supposition is unfounded, but that it is false. If the tests work out as I suppose, Thompson's account of the adventures of CE399 will have to be put aside.

I imply no carelessness or illicit fault on Thompson's part, for he cannot have known the obscure firearms principle which invalidates ~~his~~ the premise of his otherwise plausible explanation.

I mention this in anticipation of doing tests because it occurred to me that Thompson's analysis might bear significantly on your researches. I don't know specifically what you are doing, so I can't tell for sure. Also I suppose that if it is important to you, you will not wish to rely on the results of my tests, but will want to perform parallel tests of your own with the M-C cartridge.

I must do the test with a cartridge other than the M-C, since it requires reloading and I do not have access to reloading equipment for the M-C cartridge. It does not matter much, however, for the test is intended merely to demonstrate a firearms principle which applies to all center-fire rifles.

If the matter does not especially concern you and you don't want to bother with parallel tests, then you can sit tight and wait for a memo that I write after the tests.

Basically, the principle is this: the characteristic microscopic marks on the primers of fired cartridge cases vary greatly with the pressure exerted on the case in the course of blow-back. This means that if the marks on the primers of two or more cases which are known to have been fired in the same weapon are sufficiently similar in certain important features (e.g., clarity of imprinting, depth of primer impression, degree of cratering, character of individualistic marks, etc.), all the cases were fired under virtually the same pressure, and hence in each instance the muzzle velocity of the bullets were virtually the same. A close degree of similarity constitutes positive proof that all the cases were fired under the same chamber pressure.

From my own pictures and from photos reproduced in the Hearings it is evident that the microscopic marks on the primers of CEs 543, 544, 545, and 557 (Frazier's two tests) are virtually the same. This indicates that they were all fired under virtually the same (normal) chamber pressure of about 37,000 pounds per square inch and that they all thrust bullets out of the muzzle at a velocity of about 2160 feet per second.

On the basis of this principle (and a good test that demonstrates it) those who wish to count CE399 and the three cartridge cases as part of the assassination paraphernalia will have to reckon that CE399 traveled at the normal velocity.

I have found a few authoritative references that substantiate what I say, but I need a test to be absolutely sure that the principle applies ~~next~~ when the variance in pressure is between 37,000 psi and whatever pressure causes the bullets to move at less than the speed of sound (about 1100 feet per second).

If you run the test you will have to fire about five rounds at each level of pressure from normal down to what produces the sub-sonic velocity. If you do it, be careful as hell to check the bore after each shot at low pressure, for the bullet may stick in the bore and not exit. If you fire a bullet on top of it, the chamber could explode.

You need not bother with the test for my benefit, for I intend to do it anyway, but if you run it, I would like to see the cases that you produce-- or pictures of them.

Still,

Dick

Dick Bernabei

cc. Weisberg